



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/576,492 05/23/00 NARIAI

K 040447/0218

EXAMINER

MMC2/1219

FOLEY & LARDNER
WASHINGTON HARBOR
3000 K STREET N W SUITE 500
WASHINGTON DC 20007-5109

ADDISON, K

ART UNIT

PAPER NUMBER

2834

DATE MAILED:

12/19/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/576,492	Applicant(s) NARIAI, KYOICHI	
	Examiner Karen B Addison	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-11 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 9-11 is allowed. Prior art fails to show(fig.13) A piezoelectric element driving circuit for driving a plurality of piezoelectric elements disposed in a plurality of head units, comprising: a plurality of power amplifiers for driving the plurality of piezoelectric elements disposed in the plurality of head units; a plurality of first switch devices, disposed corresponding to said plurality of power amplifiers, having a plurality of connection/disconnection switches whose input side is short-circuited.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Prior Art in view of Puskas (5834871).

Applicants Prior Art discloses in fig.3 A piezoelectric element driving circuit for driving a plurality of piezoelectric elements disposed in a plurality of head units (4), comprising: a power amplifiers (2) for driving the plurality of head units (4,y, m, c, k); a flexible flat cables (3) disposed between said power amplifiers and the plurality of head units for

Art Unit: 2834

connecting the plurality of head units and said power amplifiers; and a drive waveform signal generating circuit (1) for supplying a drive waveform signal to said power amplifiers and the plurality of head units, wherein each of the plurality of head units has: a switch device for supplying a piezoelectric element current to the plurality of piezoelectric elements, wherein said plurality of power amplifiers are disposed corresponding to the plurality of head units, said plurality of power amplifiers supplying a drive waveform signal that is input from said drive waveform signal generating circuit to said plurality of power amplifiers through said plurality of flexible flat cables so as to drive the plurality of head units. Wherein; the head units are yellow, magenta cyan and black. Applicant prior art does not show a plurality of amplifiers, and flexible flat cables connected a plurality of head units.

Puskas (5834871) teaches (fig.9a and 10) the concept of using multiple generator circuits (232a, b, and c) to drive each associated transducer (238a,b, c).

As applicant prior art shows the structure required to meet the applicant's functional requirement the method is inherent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a plurality of amplifiers and flexible flat cables, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. ST. Regis Paper CO. v. Bemis Co., 193 USPQ 8.

Art Unit: 2834

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 703-306-5855. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0956 for regular communications and 703-308-0956 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KBA
December 7, 2000


NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800